



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/690,813

10/23/2003

Peter Schramm

2380-996

5428

23117 7590 01/24/2007

NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

KIM, WESLEY LEO

ART UNIT

PAPER NUMBER

2617

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

01/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/690,813

Applicant(s)

SCHRAMM ET AL.

Examiner

Wesley L. Kim

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8-13, 15-23 and 25-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-13, 15-23 and 25-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to Amendment filed on 11/13/06.

- Claims 34-38 are newly added.
- Claims 1, 4, 8-12, 15, 19, 22-23, 25-26, 28, and 31-33 are currently amended.
- Claims 5-7, 14, and 24 are canceled.
- Claims 1-4, 8-13, 15-23, and 25-38 are pending in the current Office Action.

Response to Arguments

Applicant's arguments filed 11/13/06 have been fully considered but they are not persuasive.

- Applicant argues that Sporre does not teach estimating a training sequence based on a signal burst and identifying a target base station from which the signal burst was received by using the training sequence.

The examiner respectfully disagrees. The examiner believes Sporre teaches estimating a training sequence based on the signal burst (Col.11;43-49, estimates the training sequence from the eight time slots, i.e. time slot 0 which includes the BSIC); identifying a target base station from which the signal burst was received by using the training sequence (Col.11;38-40 and Col.11;43-45, training sequence, i.e. time slot 0 contains the BSIC which is decoded by the mobile station and then related to a target base station). To the examiner the BSIC is inserted in the signal burst, located in the time slot 0 is the training sequence, and provides the identity of the target base station. From the claim language a training sequence can be broadly

interpreted as data included in a signal burst for the provision of target base station identity, so the examiner, who is given the right to broadly interpret the claim language, does not seem to be wrong in his interpretation.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1, 36, and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "measuring and identifying are performed more or less in parallel by different functional units in the mobile station". The phrase "more or less" is vague and indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

To the examiner, "more or less in parallel" could mean 10 seconds after one device processes the information or 1 second later or exactly at the same time, thus leaving it up to the person to give their own interpretation as to what "more or less in parallel" means. Essentially the metes and bounds are not established by the terminology "more or less in parallel"

The examiner notes that he invited the applicant to add "the measuring and identifying are performed more or less in parallel by different functional units in the mobile station" into the claim language, however the examiner at the time overlooked the problem with the phrase "more or less" in the limitation.

Claims 36 and 38 recites "essentially in parallel". Just as noted above, the metes and bounds are not established by the use of the vague and indefinite term "essentially". See arguments above for "more or less".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 4, 8, 12, 15, 22-23, 26, and 32-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Sporre (U.S. Patent 596657).

Regarding Claim 34, Sporre teaches receiving a signal burst over a TDMA based wireless communications link (Col.1;21-26 and Col.11;31-38); measuring link quality of the signal burst (Col.11;31-38); estimating a training sequence based on the signal burst (Col.11;43-49, estimates the training sequence from the eight time slots, i.e. time slot 0 which includes the BSIC); identifying a target base station from which the signal burst was received by using the training sequence (Col.11;38-40 and Col.11;43-45, training sequence, i.e. time slot 0 contains the BSIC which is decoded by the mobile station and then related to a target base station).

Regarding Claims 4 and 22, Sporre teaches all the limitations as recited in claims 34 and 37, respectively, and Sporre further teaches the received signal burst is measured with respect to received signal burst strength (RSS) (Col.4;10-13).

Regarding Claim 8, Sporre teaches all the limitations as recited in claim 34, and Sporre teaches a code of the training sequence (Col.11;61-62, BSIC of list of frequency channels) is identical to the identity of the target base station (Col.4;13-17, BSIC is identical to the identity of target base station).

Regarding Claims 12 and 26, Sporre teaches all the limitations as recited in claims 34 and 37, respectively, and Sporre further teaches the channel estimation is conducted on the received signal burst with respect to the target base station for performing at least one of the measuring and identifying steps (Col.4;10-13).

Regarding Claim 15, Sporre teaches all the limitations as recited in claim 34, and Sporre further teaches the received signal burst includes a complete burst period (Col.11;43-49, eight time slots is a complete burst period).

Regarding Claim 23, Sporre teaches all the limitations as recited in claim 37, wherein the received signal burst includes an identity of the target base station which is detected by the mobile station (Col.4;13-17).

Regarding Claim 32 and 33, Sporre teaches a mobile phone capable of performing all the limitations according to claim 34 (See claim 34 rejection), therefore there exists a computer program product directly loadable or stored in the internal memory of a computer in the mobile station, including software code means for performing the method according to claim 34.

Regarding Claim 36, Sporre teaches all the limitations as in claim 34, and Sporre further teaches estimating the training sequence (Col.11;39-49, estimates the

time slot 0 containing the BSIC) and so a maximum-likelihood algorithm is used to determine which of the eight time slots is most likely the training sequence.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 18-21, 31, 36, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sporre (U.S. Patent 596657) in view of Khan et al (U.S. Patent 6754509 B1).

Regarding Claims 1, 19, 36 and 38, Sporre teaches all the limitations as recited in claim 34 and 37, respectively, and Sporre further teaches measuring by the mobile station a link quality of the received signal burst (Col.4;10-14, signal burst strength), simultaneously identifying the target base station based on the same received signal burst (Col.4;13-17, the mobile decodes the base station id as a part of the measurement, the measurement of link quality and identification of the base station is done simultaneously), and qualifying the measurement if the mobile station has succeeded to identify the target base station (Col.4;27-29, if the mobile was able to decode the BSIC, the measurement is included in the report), or discarding the measurement if the mobile station, has failed to identify the target base station (Col.4;27-29, if the mobile was unable to decode the BSIC the measurement is definitely not included in the report), however Sporre is silent on the measuring and

identifying are performed more or less in parallel by different functional units in the mobile station.

To the examiner, it is obvious that the functions of the one processor of Sporre, which can already measure a link quality of the received signal burst and simultaneously identify the target base station based on the same received signal burst (Col.4;13-17, the mobile decodes the base station id as a part of the measurement, the measurement of link quality and identification of the base station is done simultaneously), could be performed more or less in parallel by different functional units (i.e. dual processors) in the mobile station.

Further supporting this position, Khan teaches that it is well known in the art that mobile stations can have dual processors for the purposes of each processor handling different functions (Col.1;48-59, the function for one processor could be to measure the link quality and the other function for the other processor being identification of the target base station).

The examiner notes that the term "simultaneous" and "more or less" could have multiple interpretations depending on who the interpreter is. Simultaneous could mean, almost at the same point but not exactly at the same point (i.e. See Schramm et al, U.S. Pub. 2004/0127163, Par.43) and "more or less in parallel" could mean 10 seconds later or 1 second later or exactly at the same time, leaving it up to the person to give their own interpretation as to what it means.

The Sporre reference clearly teaches that the link quality measurements and base station identification are performed simultaneously according to the examiners

interpretation of "simultaneous" (Fig.4 and Col.11, step 3 and step 4) and it is obvious that dual processors are able to perform two functions more or less in parallel.

To one of ordinary skill in the art, it would have been obvious to modify Sporre with Khan at the time of the invention, such that the measuring and identifying are performed more or less in parallel by different functional units in the mobile station, to provide a method where the dual processor can process information at a faster rate than a single processor doing all of the work.

Regarding Claim 2 and 20, Sporre and Khan teach all the limitations as recited in claims 1 and 19, respectively, and Sporre further teaches the mobile station is connected to a serving base station (Col.4;30-32) and the target base station is a neighbouring base station (Col.4;13-17), wherein by the further step of reporting the qualified measurement by the mobile station to the serving base station (Col.4;30-32).

Regarding Claim 3 and 21, Sporre and Khan teach all the limitations as recited in claims 2 and 20, respectively, and Sporre further teaches the mobile station is directed by the serving base station in a measurement order to select a measuring and identifying scheme for performing the steps of measuring and identifying, wherein the scheme is pre-programmed in the mobile station (Col.10;52-Col.11;10, the serving base station sends a BA-list to a mobile station with a bit map representation of a channel twice if traffic channels are to be measured (i.e. a

scheme) and only once if BCCH channels are to be measured (i.e. another scheme)).

Regarding Claims 18 and 31, Sporre and Khan teach all the limitations as recited in claim 1, and Sporre further teaches the qualified measurement is used for at least one of: performing base station selection (Col.8;4-11) for serving the mobile station in idle (Col.11;11-13).

4. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sporre (U.S. Patent 5966657) in view of Applicants Admitted Prior Art (Schramm et al).

Regarding Claim 28, Sporre teaches all the limitations as recited in claim 37, and Sporre further teaches the target base station is unsynchronised with the mobile station (Col.11;43-45), however Sporre **does not expressly disclose** the mobile station receives a burst of a synchronisation channel for obtaining timing information, wherein the identifying step is based on the obtained timing information.

Sporre teaches a mobile station may not be synchronized and in order to synchronize, measures over a time period of at least eight time slots (i.e. synchronization channel burst) to be sure that time slot 0 will occur during the measurement. Based on the timing information (i.e. location of time slot 0 in the eight time slots channel burst) the mobile station determines the identity (Col.11;38-40 and Col.11;45-49).

Applicants Admitted Prior Art teaches in GSM, the BSIC (i.e. identity) is included in bursts of the logical synchronisation channel (SCH) (Par.10;1-3).

To one of ordinary skill in the art it would have been obvious to modify Sporre with Applicants Admitted Prior Art, such that the received signal burst includes a synchronisation channel burst from the target base station including the identity, so that the mobile station may be tuned to the specific channel frequency to measure the link quality.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sporre (U.S. Patent 5966657) in view of Silventoinen et al (U.S. Patent 6594250 B1).

Regarding Claim 10, Sporre teaches all the limitations as recited in claim 34, however Sporre **is silent on** the received signal burst includes a dummy burst including an identity of the target base station.

Silventoinen teaches a signal burst includes a dummy burst including an identity of the target base station (Col.6;28-34).

To one of ordinary skill in the art it would have been obvious to modify Sporre with Silventoinen, such that the received signal burst includes a dummy burst including an identity of the target base station, to provide continuous data transmission since all time slots in a frame are used for transmission throughout the subsequent frames in such a way the mobile stations don't confuse the burst addressed to them with another type of burst.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sporre (U.S. Patent 5966657) in view of Delprat et al (U.S. Patent 5583870).

Regarding Claim 11, Sporre teaches all the limitations as recited in claim 34, and Sporre teaches a training sequence (Col.11;43-49, i.e. time slot 0), however

Sporre **is silent on** the burst from the target base station is a dummy burst including the training sequence being related to the identity of the target base station.

Delprat teaches that dummy bursts include a training sequence which can be recognized by the mobile stations (Col.3;35-39).

To one of ordinary skill in the art it would have been obvious to modify Sporre with Delprat, such that the received signal burst includes a dummy burst including a training sequence being related to the identity of the target base station, to provide continuous data transmission since all time slots in a frame are used for transmission throughout the subsequent frames in such a way the mobile stations don't confuse the burst addressed to them with another type of burst.

7. Claims 13 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sporre (U.S. Patent 5966657) in view of Kansakoski et al (U.S. Patent 5214687).

Regarding Claims 13 and 27, Sporre teaches all the limitations as recited in claims 12 and 26, however Sporre **is silent on** determining the channel estimates for a set of pre-determined training sequences, calculating a selection metric, and selecting the training sequence that yields the greatest selection metric.

Sporre teaches measuring control channel frequencies to determine the best possible control channel frequencies for possible hand-off in the event its current signal burst deteriorates (Col.9;59-Col.6;2). To one of ordinary skill in the art it is obvious that a desired selection metric (i.e. signal burst strength) level is determined and the control channel frequencies (i.e. training sequence) with the best selection

metric are used to select the training sequence (i.e. control channel frequency) that yields the greatest selection metric.

Kansakoski teaches determining the channel estimates for a set of pre-determined training sequences (Col.1;61-63).

To one of ordinary skill in the art it would have been obvious at the time of the invention to modify Sporre With Kansakoski, such that channel estimates are determined for a set of predetermined training sequences in order to select the training sequence with the best selection metric, to provide a method of determining the best possible control channel frequencies for a possible handoff when current signal burst quality deteriorates.

8. Claims 9 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sporre (U.S. Patent 5966657) in view of Nikula et al (U.S. Patent 6690751 B1).

Regarding Claim 9 and 25, Sporre teach all the limitations as recited in claims 34 and 37, however Sporre **is silent on** attempting to detect the received signal burst using at least two, different modulation forms.

Mind Commerce teaches EDGE systems (for GSM) recognizes two modulation methods (Col.1;25-28).

To one of ordinary skill in the art it would have been obvious to modify Sporre such that the identifying step includes attempting to detect the received signal burst using at least two different modulation forms, to provide a method of enhancing throughput of digital radio transmission systems by allowing different modulation

methods according to the signal burst propagation conditions and/or the nature of the information to be transmitted.

9. Claims 16-17, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sporre (U.S. Patent 5966657) in view of Narasimha et al (U.S. Patent 6125125).

Regarding Claim 16 and 29, Sporre teaches all the limitations as recited in claims 12 and 26, however Sporre **is silent on** wherein the received signal burst includes contributions from a plurality of unsynchronised target base stations transmitting on the same frequency channel, wherein the steps of measuring and identifying are performed with respect to one target base station at a time sequentially for at least two of the target base stations.

Narashima teaches that various BTS's operating on the same frequency are not synchronized (Col.3;24-27), and a training sequences from two BTS's are detected at a mobile station sequentially (Col.3;30-32).

To one of ordinary skill in the art it would have been obvious to modify Sporre with Narasimha since Sporre and Narasimha are from similar search areas, viz. transmission of data from a BTS to a mobile station in TDMA cell sites, in order to efficiently handle multiple base stations operating on the same frequency channel.

Regarding Claims 17 and 30, Sporre teaches all the limitations as recited in claims 12 and 26, however Sporre **is silent on** wherein the received signal burst includes contributions from a plurality of synchronised target base stations transmitting on the same frequency channel, wherein the steps of measuring and

Art Unit: 2617

identifying are performed with respect to the target base stations for at least two of the synchronised target base stations jointly in one operation.

Narashima teaches that various BTS's operating on the same frequency are not synchronized (Col.3;24-27), and a training sequences from two BTS's are detected at a mobile station not simultaneously but sequentially (Col.3;30-32) due to the BTS's not being in synchronization. One of ordinary skill in the art would envision, from Narashima's teaching, that if the base stations were synchronized on the same frequency channel, then the training sequences would be detected jointly in one operation.

To one of ordinary skill in the art it would have been obvious to modify Sporre with Narasimha since Sporre and Narasimha are from similar search areas, viz. transmission of data from a BTS to a mobile station in TDMA cell sites, in order to efficiently handle multiple base stations operating on the same frequency channel.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

Art Unit: 2617


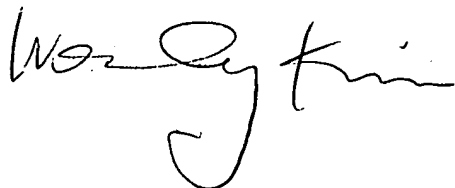
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley L. Kim whose telephone number is 571-272-7867. The examiner can normally be reached on Monday-Friday 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WLK



GEORGE ENG
SUPERVISORY PATENT EXAMINER